

## Prioritizing Obesity in the City

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**ABSTRACT** *A decade ago, the World Health Organization declared obesity to be a global epidemic. Accordingly, there is a growing body of research examining how “obesogenic environments” contribute to the increasing prevalence of obesity. Using the ANGELO Framework, this research explores the role of municipal policies and practices in constructing obesogenic environments in two Southern Ontario cities in order to examine how socio-cultural and political environments shape excess body weight. Data was collected from municipal policy documents, public health websites, and key informants in Hamilton and Mississauga, Ontario, Canada. Results indicate that while the cities took different approaches to dealing with obesity, they both reflected the cities’ overall prioritizing of health. Additionally, the findings reveal the pervasiveness of values and attitudes held in the socio-cultural environment in further shaping (and being shaped by) political as well as economic and physical environments in the cities. The importance of explicitly acknowledging the official discourse of the city, which this study demonstrates to be a significant factor in constructing obesogenic environments, is highlighted. Theoretical contributions and policy implications are also discussed.*

**KEYWORDS** *Obesity, Environmental determinants, ANGELO Framework, Municipal priorities, Socio-cultural factors, Political factors*

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### INTRODUCTION

That we are facing a global epidemic of obesity has been widely discussed since the World Health Organization made this claim nearly a decade ago.<sup>1</sup> The health implications of excess body weight<sup>2,3</sup> as well as the increased costs for health care systems<sup>4,5</sup> have been major drivers for managing the epidemic.

Much past research has emphasized the importance of individual level factors (e.g., genetics, socio-demographic characteristics, lifestyle behaviors) in determining body weight.<sup>6–9</sup> This body of research implies that obese individuals are responsible for their own body and health, and subsequently, those with excess body weight are stigmatized based not solely on body size but also on the character flaws that are assumed to produce such unhealthy bodies (i.e., gluttony, sloth, lack of will power, immorality).<sup>10,11</sup> This line of reasoning has placed much onus on individuals to control their own weight out of moral duty to themselves and society.<sup>12–14</sup>

However, there has been an increasing recognition by researchers as well as policy makers that environmental factors also play a role in the prevalence of obesity.

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Specifically, more attention has been placed on “obesogenic environments” that promote unhealthy eating patterns, reduced levels of physical activity and increased sedentary behavior, and consequently contribute to rise in body weight.<sup>15,16</sup> In contrast to the “blame the victim” approach above, this stream of research focuses on population-level/structural factors that are often out of the control of individuals.

The ANGELO Framework<sup>17</sup> suggests that there are scales ( $n=2$ ) and types ( $n=4$ ) of environments that contribute to the obesogenicity of a particular place. For instance, both micro-environmental settings (i.e., home, workplace, neighborhood) and macro-environmental sectors (i.e., international food production, regional transportation services, provincial health policies) influence the physical activity and dietary patterns that contribute to obesity. In addition to small and large-scale environmental influences, this framework acknowledges types of environments (physical, economic, socio-cultural, and political) that influence obesity. For example, physical environments affect access to children’s playgrounds while economic environments affect the cost of fresh fruits and vegetables. Moreover, the socio-cultural environment can impact feelings of safety when using public spaces, and political environments dictate policies related to, for example, vending machine access in public spaces such as schools. Some of these environmental factors shape body weight more directly (e.g., cost of health foods, access to outdoor play spaces) than others (i.e., poverty reduction programs, community policing strategies to maintain safe parks). In summary, the ANGELO Framework is a comprehensive tool to conceptualize how factors beyond the individual may influence obesity.

To date, there has been an abundance of research demonstrating a relationship between certain local (micro) environments and excess body weight. Specifically, higher rates of overweight and obesity are associated with low socioeconomic status (SES) neighborhoods in urban centers in many developed countries including Australia,<sup>18</sup> Canada,<sup>19,20</sup> New Zealand,<sup>21</sup> the United Kingdom,<sup>22</sup> and the United States.<sup>23,24</sup> The pathways through which these neighborhoods shape body weight have been the focus of investigation by researchers who note that access to unhealthy foods is high,<sup>25,26</sup> while physical activity is limited by fear of using public space,<sup>27,28</sup> high levels of traffic,<sup>29</sup> poor walkability,<sup>30,31</sup> and lack of amenities.<sup>32</sup>

Yet, while there has been an abundance of studies examining the link between environmental scale and increased rates of obesity, specific types of environments have not garnered the same attention by researchers. A recent systematic review of research on urban environments and body weight found that the majority of studies focused on the role of economic and physical environments in shaping obesity, with considerably less research examining socio-cultural environments.<sup>33</sup> The authors further note, “perhaps the most striking finding in our review was the complete lack of evidence for the role of political settings and sectors in relation to obesity/healthy weights in the urban context.”<sup>33</sup> Similarly, a recent scoping review of literature related to environment and obesity found only two studies relevant to the political environment and obesity (conducted in school and home settings), and noted that research on the socio-cultural environment was limited.<sup>34</sup> Both of these studies suggest that there is a dearth of research examining the role of political and, to some extent, socio-cultural environments despite that conceptually, these environments have been identified as relevant factors shaping obesity (i.e., ANGELO Framework) and have been long identified as relevant determinants of population health.<sup>35–38</sup> The absence of research on these types of environments may be in large part due to the difficulty of investigating factors in the socio-cultural and political environments using the quantitative methods that have most often been utilized in linking local environ-

ments with obesity.<sup>39</sup> Nonetheless, understanding the mechanisms through which *multiple* factors in local environments shape body weight is increasingly important in order to understand, and subsequently slow, the rapidly rising rates of obesity.

Accordingly, this study aims to explore the role of socio-cultural and political environments that influence body weight in obesogenic micro-environments. While the research indicates that low-SES neighborhoods are most commonly associated with high rates of obesity, the socio-cultural and political conditions at this micro-level are more often constructed at a larger scale, such as the municipality, region, state/province, and/or nation. These larger-scale environmental factors shape micro-environments, and subsequently influence obesity, through many potential pathways. For instance, at the municipal level, such mechanisms may include municipal priorities (e.g., focus on environmental sustainability), funding decisions (e.g., closure of underused public transportation routes), and service-delivery practices (e.g., dissemination of public health information), as well as planning policies (e.g., creation of zoning laws that ensure mixed land use).

As the aim of this study is to examine previously neglected types of environments that operate at a micro-environmental scale, this research was guided by the broad research question: How do municipal priorities and policies shape obesogenic environments?

### Research Design and Methods

This paper explores the role of socio-cultural and political environments in constructing urban obesogenic environments. In so doing, the following objectives are addressed:

- (a) What is the role of municipal health policies and strategic plan priorities in shaping the *political* environment as it relates to obesity?
- (b) What is the role of municipal obesity discourse in shaping *socio-cultural* environments related to obesity?

Using a parallel case study design, three sources of data were used to address the objectives: municipal policy documents, public health unit websites, and key informant interviews. According to the ANGELO Framework, the political environment is composed of the informal/formal rules and policies related to obesity, while the socio-cultural environment refers to the attitudes, values, and beliefs that directly/indirectly shape body weight.<sup>17</sup> Thus, in this study, the policy documents and public health websites are used to investigate the political environment in both cities by examining the health priorities and initiatives related to obesity. The socio-cultural environments in both cities are explored by qualitatively examining the obesity discourse found in the documents and websites. Key informant interviews were conducted to explore the values and attitudes towards health and obesity held by community stakeholders, as well as how urban priorities are implemented. All data were triangulated<sup>40</sup> in order to paint a comprehensive picture of what the socio-cultural and political environments looked like in both cities.

*Research Settings* Two mid-sized, Southern Ontario cities were selected for this study, based on prevalence of obesity. The City of Hamilton is situated at the most Western point of Lake Ontario, halfway between Toronto, Ontario, and Buffalo, New York. Although situated along the Niagara Escarpment and home to two major post-secondary institutions, Hamilton is widely known for its long-time steel

manufacturing industry. The city has battled an “unhealthy” reputation largely based on the pollution caused by industry and is in the process of actively shifting its “Steel City” image.<sup>41</sup> Hamilton was developed in 1846 with traditional Victorian design. It has since developed into a distinct urban center, complete with inner-city neighborhoods and more recent suburban communities. The City of Hamilton is composed of the original city of Hamilton in addition to five major suburbs surrounding the urban core. Unlike the situation in the United States, municipal politics in Canada is by definition non-partisan. However, there is no question that municipal leaders have particular obvious “leanings.” Politically, Hamilton's leadership has been unstable over the past decade, as leadership has changed hands four times. The current mayor, who received only 30% of the vote, has been viewed as being left of center with priorities focusing on de-amalgamating the city and its surrounding suburbs and revitalizing the inner city core. The new mayor will serve with a majority of re-elected council members with various political ideologies.

In contrast, the City of Mississauga is situated 30 km east of Hamilton, and is part of the Greater Toronto Area. Mississauga, incorporated as a city in 1974 is a sprawling suburb of Toronto and is home to Canada’s largest airport and is thus a major gateway city for new immigrants. In contrast to the City of Hamilton, Mississauga is well-known for its stable government with Mayor Hazel McCallion presiding for over 30 years and winning her twelfth term with over 75% of the vote. This mayor is acknowledged as having a slightly right-of-center approach, with fiscal responsibility, including the city’s current debt-free state, as a major priority over the years. One of the city’s prized projects is the 2005 development of The Healthy City Stewardship Centre (HCSC), which earned the city a 2007 World Leadership Award from the World City Forum.<sup>42</sup> The HCSC is part of the WHO’s healthy cities project<sup>43</sup> and brings together government, industry, education, and community sectors in order to improve the health of the city’s population.

While both cities are mid-sized, Mississauga is larger and more ethnically diverse than Hamilton (Table 1).<sup>44,45</sup> The cities tend to straddle the Province of Ontario on almost all socio-demographic characteristics, with Mississauga having higher average dwelling values, average household income, and higher levels of education than both the province and the City of Hamilton. Both cities have higher rates of unemployment than the province as a whole, as well as higher percentage of individuals living in poverty.

With respect to body weight, Hamilton is above the provincial average with almost 60% of the adult population being overweight or obese, while Mississauga is below the

**TABLE 1 Socio-demographic comparison of cities and province**

	Hamilton	Mississauga	Ontario
Total population	504,560	668,550	12,160,282
Immigrant status	26.6%	51.6%	28.3%
Non-official languages	26.2%	48.9%	26.4%
Median household income	\$55,312	\$71,393	\$60,455
Average dwelling value	\$252,248	\$377,116	\$297,479
Unemployment rate	6.5%	6.5%	6.4%
% High school education	74.9%	81.7%	77.8%
% Below low income cutoff	16.8%	14%	11.7%
Overweight/obese <sup>a</sup>	59.4%	47%	48.5%

Adapted from Statistics Canada, 2006 Canadian Census<sup>39</sup>

<sup>a</sup>Adults aged 18 and over; Canadian Community Health Survey, 2006<sup>40</sup>

provincial average with a rate of 47% (Table 1). Moreover, a 2004 survey using direct measures of height and weight from a sample of the Canadian population found that the City of Hamilton had the highest overweight/obesity rate in the country.<sup>46</sup>

*Policy Documents* In both cities, the urban strategic planning documents were collected,<sup>47,48</sup> as well as the public health strategic plans.<sup>49,50</sup> These official plans were analyzed using content analysis. The urban strategic plans were coded for content related to overall city priorities (in order to assess where health and/or obesity lie in these priorities), while public health strategic plans were coded for content related specifically to obesity (in order to understand where obesity as a lies as a priority). Documents were also coded alongside key informant interviews for discussion of the policies/initiatives related to obesity that are currently in effect or planned for implementation.

*Public Health Websites* The websites for Hamilton Public Health Services<sup>51</sup> and Peel Region Public Health Unit<sup>52</sup> were analyzed both for content and discourse related to obesity. Specifically, the content search involved quantitatively identifying any web pages on the public health site, externally linked files (e.g., .pdf files), or referral to external links that discussed major issues related to body weight (i.e., body weight/overweight/obesity; physical activity/exercise; nutrition/healthy eating/diet; body image. Only sources of 250 words or more were included. The aim of quantitatively evaluating the website content was to gain insight into what aspects of obesity were focused on by the public health units.

Both websites were also analyzed for the quality of content available using discourse analysis,<sup>53,54</sup> whereby the social implications behind the content (i.e., maintenance of power relations/social inequality) were explicitly identified. The websites varied greatly in their content, so similar pages related to childhood obesity<sup>55,56</sup> were used for analysis with a focus on how obese bodies were described and problematized, what determinants of body weight were discussed, and what interventions were suggested.

*Interviews* In each city, five key informants were selected based on their knowledge of city-wide health issues (e.g., public health professionals, city councilors, urban planners) or of health concerns facing high-risk populations (i.e., youth and low-income populations, including school officials, public health nurses, and community workers). Purposeful sampling<sup>57</sup> was used to identify potential interviewees who were then sent a letter of information about the study. Potential participants then received a follow-up e-mail or phone call to confirm their interest.

Interviews were held at a time and place convenient for the participant, most often at their office but on one occasion over the phone. Interviews lasted between 30 and 45 minutes and were audio-recorded pending consent (in one case, a city councilor preferred not to be recorded, so more extensive written notes were taken).

The interview script was semi-structured and included sections on key informants' experience with and knowledge of the community, important health concerns facing community members, and the relevance of health issues and local policies to the work they do. Transcribed interviews were then coded for thematic analysis.

This study received ethics approval from McMaster University Research Ethics Board, with a particular emphasis on protecting the anonymity of key informants. In some cases, additional ethics reviews by external committees and/or approval from supervisors were necessary prior to conducting an interview (in three cases, access to key informants was denied by the external committees citing time and resource constraints).

**RESULTS**

**Health as a Strategic Priority**

As evident in the strategic planning documents, health was a central part of the future plan of both cities (Table 2).<sup>47,48</sup> In Mississauga, key informants agreed that although health was not an explicit strategic priority, it was interwoven with all other aspects of the community well-being, including social, economic, psychological, and physical aspects.

“Healthy community” was an explicit priority area in Hamilton and key informants agreed that this was a major focal area for the city. However, health was viewed as an independent priority rather than an integrated component of the city’s strategic plan as expressed in Mississauga.

*Obesity as a Health Priority* The analysis of public health unit strategic plans (Table 3)<sup>49,50</sup> revealed that Mississauga did have a specific anti-obesity strategy that focused on creating supportive environments:

We will consider the effect of our built environment (and the food environment) in the development of our anti-obesity strategy... The current obesogenic environment makes weight management, much less weight loss, extremely difficult.<sup>50(p.8)</sup>

While the regional public health unit serving Mississauga identifies obesity as one of four major priority areas, key informants did not share the same views of the region’s health priorities (Table 3). Only one key informant identified obesity to be a priority issue for Mississauga’s population.

**TABLE 2 Health as a strategic priority**

City of Mississauga	City of Hamilton
Urban strategic plan priority areas <sup>47,48</sup>	
<ul style="list-style-type: none"> <li>• Move: developing a transit-oriented city</li> </ul> <p>“Mississauga is a city that values clean air and healthy lifestyles...”</p> <ul style="list-style-type: none"> <li>• Belong: ensuring youth, older adults, and new immigrants thrive</li> <li>• Connect-completing our neighborhoods</li> </ul> <p>“...residents support a rich, healthy and prosperous social and cultural mosaic...”</p> <ul style="list-style-type: none"> <li>• Prosper: cultivating creative and innovative businesses</li> <li>• Green: live green</li> </ul> <p>“...leave a legacy of a clean and healthy natural environment”</p>	<ul style="list-style-type: none"> <li>• Skilled, innovative, and respectful organization</li> <li>• Financial sustainability</li> <li>• Effective inter-governmental relations</li> <li>• Growing our economy</li> <li>• Social development</li> <li>• Environmental stewardship</li> <li>• Healthy community</li> </ul> <p>“Healthy and safe lifestyles are supported by quality built and natural environments.”</p>
Key informants prioritize health	
<p>“[Health] is vital... If we have healthy individuals, they are going to pay off economically because you are going to have a more productive workforce.... there is an inextricable link between the health and well-being of our residents and our community...”</p>	<p>“I don't know anyone working for the City of Hamilton who doesn't think health is important... but it isn't really an issue unless something goes wrong with it.”</p>

**TABLE 3 Obesity as a health priority**

City of Mississauga	City of Hamilton
Priority health areas (public health unit strategic plan) <sup>49,50</sup> <ul style="list-style-type: none"> <li>• Nurturing the next generation (early child development)</li> <li>• Living tobacco-free</li> </ul>	<ul style="list-style-type: none"> <li>• Improve local air quality</li> <li>• Support preparedness and response to public health emergencies</li> <li>• Maximize chronic disease prevention in four key areas: tobacco control, nutrition, physical activity, mental health</li> <li>• Gather, analyze, and disseminate health information</li> <li>• Be recognized as health experts in the community</li> </ul>
<ul style="list-style-type: none"> <li>• Supportive environments for healthy weight</li> </ul>	
<ul style="list-style-type: none"> <li>• Surveillance: data for action</li> </ul>	
Priority health areas: key informants (based on frequency of mention) <ul style="list-style-type: none"> <li>• Job security and income (e.g., employment of newcomers; low-income families)</li> <li>• Mental health (e.g., stress)</li> </ul>	<ul style="list-style-type: none"> <li>• Poverty (e.g., high % of low-income families)</li> <li>• Mental health (e.g., addiction and psychiatric disorders)</li> <li>• Air pollution (e.g., caused by industry)</li> <li>• Obesity</li> </ul>
<ul style="list-style-type: none"> <li>• Violence (e.g., gangs, domestic abuse)</li> </ul>	
<ul style="list-style-type: none"> <li>• Obesity</li> </ul>	

In Hamilton, obesity was not a specific priority area in the public health strategic plan; rather, body weight was indirectly relevant in the focus on nutrition and physical activity. Within this area, the city also acknowledges the importance of the environment by stating that Hamilton Public Health Services will “advocate for environments that support healthy behaviours.”<sup>49(p.2)</sup> Among key informants in Hamilton, only one individual stated that obesity was a priority issue for the population.

*Prioritizing Obesity in the City* Although key informants in both cities did not initially identify obesity as a top health priority, all participants were asked to speak specifically about obesity, at which point they felt it was still an important health concern for their respective populations.

In Mississauga, most key informants felt that because the regional public health unit had listed healthy weights as one of its key strategic areas, that obesity was an important issue in the city: “the region has set strategic priorities, and I know that our Medical Officer of Health is huge on obesity.” (Mississauga Key Informant [KI]-1).

In Hamilton, key informants stated that high rates of obesity in the city suggested that it was an issue of concern:

A particularly nagging issue is child obesity, because it does translate into adult obesity... I see obesity very clearly just walking around Hamilton. You see overweight parents, overweight kids. (Hamilton KI-2)

Echoing the public health strategic plans which identified obesity (in some capacity) as a priority area, both public health units did disseminate information about

obesity on their websites for public consumption. The results of the content analysis of websites revealed that obesity-related documents were more prevalent on the Peel Public Health website, the majority of which were available on the pages of the website (rather than as downloadable files or as links to external websites; Table 4).<sup>55,56</sup>

In terms of content topics, both units had the largest proportion of content dedicated to nutrition and diet, followed by physical activity. Specific content dedicated to body weight comprised the smallest proportion of articles on both websites. These focal areas suggest that the priority lies in the lifestyle behaviors rather than explicitly on body weight.

Additionally, the way in which both public health units depicted obesity as problematic differed. Hamilton viewed obese bodies as unhealthy, simultaneously identifying fat bodies as negative. In contrast, Peel explicitly focused on healthy bodies as coming in all forms (including with fat):

Healthy bodies can come in a variety of shapes and sizes...An active, overweight person has a lower risk of developing health problems than someone who is slim and inactive!<sup>56</sup>

The two cities also differed in the ways they discussed why excess body weight may be detrimental for health. Hamilton largely focused on the physical health outcomes associated with obesity (e.g., diabetes, cardiovascular disease), while Mississauga largely focused on social and mental impacts of being obese (e.g., depression, low self-esteem). Furthermore, the discourse greatly differed when discussing the social impacts of obesity:

[Obese children are at risk for] social discrimination by their peers and adults, which can lead to poor self esteem... overweight kids may also experience poor body image and have trouble making friends.<sup>55</sup>

Size prejudice hurts all children, not just those who are large.<sup>56</sup>

Hamilton depicts the discrimination faced by obese youth as an outcome of their excess body weight, something they put themselves “at risk” for by being obese. Conversely, Peel discusses size prejudice as being an external force that is applied to (not caused by) youth with various body sizes. The individual’s involvement in their own suffering is viewed very differently in both cities.

**TABLE 4 Obesity-related content on public health websites**

	Peel (Mississauga) <sup>52</sup>	Hamilton <sup>51</sup>
Total references to all topics	202	82
-Web pages	131 (65%)	15 (18%)
-Downloadable files	49 (24%)	46 (56%)
-External links	22 (11%)	21 (26%)
Body weight	4 (2%)	1 (1%)
Physical activity	66 (33%)	26 (32%)
Nutrition	112 (55%)	37 (45%)
Body image	14 (7%)	2 (2%)
Healthy lifestyle (general)	5 (3%)	16 (20%)



*Determinants of Obesity* Key informants in both cities most commonly discussed attributes of the physical environment as determinants of obesity, followed by the economic environment and then socio-cultural environment (Tables 5 and 6). None of the key informants discussed the political environment as a determinant.

In Mississauga, active transportation in the sprawling city was viewed as inhibiting physical activity while access to affordable food, particularly for newcomer and low-

**TABLE 5 Determinants of obesity according to key informants in Mississauga**

Major themes	Sub-themes	Comments
Physical environment	Availability of unhealthy food	"When new families come over, they often think that our ready-made packaged foods are wonderful, because they don't have that back home..."
	Built environment	"We are a very car-reliant community because we are so large...it is very difficult for people to get to one part of the city to another, certainly by walking. We have some connection issues."
	Availability of physical activity resources	"There is a community center, fitness center, and a swimming pool too. Everything is central in this area. If someone wanted to work out, there is no excuse for them not to. They could do it."
	Culturally appropriate activity resources	"There used to be a standard: you get a baseball diamond, soccer pitch, and typical play structure." Now the thinking is more "maybe we need a bocce ball field and cricket pitch in this community..."
Economic environment	Cost of nutritious food	"Kids are coming to school without lunch, or only with a couple of dollars and if you go into a high school cafeteria, what is cheap? Fries, Jamaican patties, pizza slices..."
	Cost of recreational programs	"From what the community says, it is a lot of money to use all the fitness services in this area..."
	Financial priorities	"One parent will migrate, find a job, and then bring the family over. But then they really can't afford to have their families here because housing in the area is very expensive, plus food and clothes..."
Socio-cultural environment	Cultural foods	"We do a lot of workshops about what a portion size would look like for a typical 5 year old and it is hard to translate to a curry because the vegetables and the meat are all mixed together..."
	Excess portion sizes	"People come over and all of a sudden portions are much bigger...A bagel is a big serving size here."
	Feelings of safety	"If you are not feeling safe in your community, you are not out with your children walking or riding your bikes."
	Role-modeling healthy behavior	"I think adults have to be better role models because they say, 'You should eat this' as they are walking around with their [coffee and donuts]." "We need better role models for girls in physical activities. In hockey, you look at the guys' teams and you know the girls' teams don't get the same press coverage..."

**TABLE 6 Determinants of obesity according to key informants in Hamilton**

Major themes	Sub-themes	Comments
Physical environment	Access to amenities	“I think of environmental diversity here, we have such variety. We are not living in a concrete jungle. We have the waterfront. We have the escarpment. We have a great parks system.”
	Increased access to foods	“I don’t believe that there are any barriers for anybody in this city. You have access say to a variety of food. You have access to so many trails. We have so many things here. I don’t believe there is any excuse. It becomes an individual responsibility at that point.” “We are constantly presented with abundance. There is always plenty of food available. You can call up food from around the world. Historically, this wasn’t the case...”
	Lack of access to food	“This area has a bad grocery store situation. There are not a lot of them. People are buying their groceries at convenience stores... as far as fresh fruits and vegetables, there is not a lot of that happening.”
	Education & Awareness	“I mean many parks and trails here are heavily used... It is an educational thing for others. If you are not aware that is exists, it might not exist.”
	Pollution	“I don’t want to black ball Hamilton but we have a lot of industry here, and it is more difficult for residents to be active here because of the air.”
Economic environment	Cost of nutritious food	“If we have the highest level of poverty in Ontario here, then of course the access to healthy nutrition is impacted by living in Hamilton.”
	Financial responsibilities	“A lot of the kids have to work after school, so things like extracurricular activities are not even an option.”
	Poverty	“Obesity could be related to poverty in a way that I don’t buy myself, because you are poor, you don’t have access to good food. I think you buy into junk food, because it is more accessible.” “If you put money in the hands of the people who need it most, they are going to spend to ensure that they have things like education and adequate nutrition... But when you talk to some middle class people, often they say, ‘Oh yeah, they will just spend it on beer.’ You know that attitude, blaming the poor for being poor.” “There are health issues, and this includes obesity, for people who are vulnerable to low-income. Giving them more money should help, but then I don’t know because I see them carrying cases of beer on days that welfare comes out...”
Socio-cultural environment	Norms around healthy living	“Physical activity is part of a lifestyle. Their parents don’t deem it as important, and so the kids don’t see it as important.” “The number of people who now cannot cook, literally do not know how to cook the basics, is alarming... Kids don’t see food being prepared in the home.”
	Advertisements	“We are bombarded with advertising for the tons of crap out there for kids to eat, and they do eat it, because it tastes good even though it isn’t healthy.”

income populations, was impeding healthy diets. One determinant unique to the City of Mississauga was the diverse population (Table 5). Specifically, planning public health programs to target the many cultural foods and food preparation styles was viewed as challenging, while planning recreational space to encompass a broad range of physical activities (i.e., soccer and cricket) was also viewed as limiting physical activity.

In Hamilton (Table 6), the city's urban design was seen as both health-promoting and inhibiting. On one hand, key informants discussed Hamilton's natural landscape as being beneficial for increased physical activity, while on the other hand, four out of five key informants discussed barriers to accessing those physical activity opportunities (e.g., cost, pollution). Additionally, there was discrepancy about whether increased access to food existed in all areas of the city, and whether this abundance was beneficial for health (i.e., increased access to fruits and vegetables) or detrimental (i.e., access to pre-packaged foods).

In contrast to the key informants' focus on physical environmental determinants of body weight, the public health websites focused more on socio-cultural environments. For instance, a major reason for increased body weight was societal lifestyle changes:

Food portions have become super sized and we often eat on the run instead of taking time to enjoy family meals... kids are less active and fewer of them play outside anymore.<sup>55</sup>

The rapidly increasing rate of childhood obesity in Canada is a symptom of underlying problems in our 21st-Century lifestyle. Our children did not create these problems but they are paying the price, both emotionally and physically.<sup>56</sup>

It is apparent that both cities have very different perspectives on what/who are responsible for adopting negative lifestyle patterns. Hamilton views the families' inability to sit down for dinner and kids' lack of outside play as causes of increased obesity. The onus is implicitly on the individuals for not engaging in a healthy lifestyle. In contrast, Peel explicitly states that the lifestyle change is part of a bigger national societal change that youth are not responsible for but victims of, suggesting they have little choice over what happens to their bodies.

Both the key informants and websites suggest "time" as another relevant determinant of obesity. Specifically, the change in knowledge and practice over time has resulted in the creation of environments that do not support healthy lifestyles. As both website quotes state, the "21st-Century lifestyle" has shaped bodies by changing and normalizing certain lifestyle behaviors. This includes a shift towards more sedentary and technology-based activities (e.g., working on the computer, watching television), more pre-prepared food that is less nutritious and served in larger portions (e.g., super-sized meals at fast food restaurants), and reduced opportunities for physical activity (e.g., car reliance, less physically laborious work). Moreover, key informants from both cities acknowledged the important role of urban planning in designing healthy cities. Yet, what is considered healthy has changed over time:

What people thought was healthy has changed. Health was always a consideration but there was a time when we thought doing reverse frontage lots and the cul-de-sacs was protecting communities from through traffic. By having these little dead end streets, we thought that was healthy. Safety was a big issue then, traffic safety was healthy... Our thinking now is changing and those things aren't enough, and in fact they are barriers to good health... the way we look at health has changed. (Mississauga KI4)

Understanding the previous beliefs and practices, particularly in fields that require long-term planning and development such as urban design, are especially important for complex population-health outcomes like obesity.

*Planning Ahead: Modifying Obesogenic Environments* Both cities stated in their anti-obesity strategies that modifying environments was a future priority. In Mississauga, this was echoed by key informants who outlined the city's strategies for doing this, largely focusing on improving active transport. Additional strategies included policies created by the public planning department that require new developments to utilize a mixed land use design so that residents are close to commercial opportunities (e.g., shopping) in addition, any changes to the existing environments must incorporate mixed land use ("forcing the mix" as one key informant stated). Further modifications are being made to older neighborhoods in order to make "strong nodes and corridors" so that these communities are self-sufficient and will allow residents to get central services without having to travel across the city. This goal to create strong neighborhoods and increase active transportation (e.g., walking) was a major priority in the city's 40-year strategic plan, which key informants expect will progress because of its prominence in the plan. Additional suggestions for obesity-related initiatives put forth by key informants focused on the political environment. For instance, encouraging school boards to implement better nutrition policies for food sold on site, and requesting support from the provincial and federal governments for the rapid population growth, specifically to accommodate newcomer populations, are examples of such initiatives.

In the much older City of Hamilton, it was noted that major modifications to the built environment would be more of a challenge due to older city design. Yet, Hamilton had implemented some strategies to modify the built environment, such as refurbishing rundown playgrounds with new outdoor fitness equipment. However, the majority of initiatives in effect were targeted towards helping specific populations deal with obesogenic environments. Some of these initiatives included encouraging a healthy snacking program to coaches of youth sports teams, offering grocery vouchers to low-income families, and setting up healthy eating action teams in school to promote healthy cafeteria options.

The role of poverty as a determinant of obesity was acknowledged as important to all key informants, although it was never explicitly discussed in either the city or public health strategic plans. This knowledge certainly reflects the importance of this issue in Hamilton where the health disparity between the city's richest and poorest communities results in a 20-year difference in life expectancy.<sup>58</sup> However, there was much discrepancy among key informants about the best way to deal with poverty as it relates to health and body weight. One key informant suggested that the provincial government create a livable wage policy to support low-income populations. Hamilton does have organizations that focus on issues of poverty in the City of Hamilton (e.g., Hamilton Roundtable for Poverty Reduction) and more input from these experts would be especially beneficial when looking to modify low-income neighborhood environments in relation to obesity.

While they were not probed to discuss the relevance of upstream factors that affect obesity rates, key informants in both cities acknowledged the importance of policies that indirectly influence population body weight including population growth, poverty, school nutrition, and urban design. In general, these observations tended to reflect the key informants' areas of expertise (e.g., vice principals spoke

about school nutrition, while urban planners spoke about city design). Such policies are undoubtedly important, albeit unintentional, factors that contribute to body weight and clearly highlight the complexity of the obesity epidemic.

## **DISCUSSION AND CONCLUSIONS**

As obesity rates continue to rise despite the abundance of research on individual-level determinants of body weight, there is a growing recognition of the importance of population-level and environmental factors that contribute to what has been referred to as a public health crisis. This research sought to examine the role of socio-cultural and political environments in constructing obesogenic micro-environments. In doing so, municipal policies and practices relating to obesity were examined in two unique Canadian urban settings.

### **Summary and Relevance of Findings**

The findings revealed that the two cities took very different approaches in prioritizing health and obesity. Mississauga sought to maintain its healthy reputation by incorporating health into all of its strategic goals. Key informants were aware of the city's health priorities and discussed the centrality of a healthy population to the well-being of the city. The Peel region's anti-obesity strategy also reflects this mind-set by taking a preventative approach to obesity in seeking to modify the environment and ultimately make change at a larger population level. Additionally, the website discourse focused on social determinants of obesity and almost completely ignored any role for individuals to make decisions about health for themselves. The environment was depicted as largely deterministic by the city, which suited their perspective that health is encompassed in everything, as well as their priority to maintain a healthy city.

Hamilton's reputation as an industrial and therefore unhealthy city was evident throughout. The explicit inclusion of health as a strategic goal and the focus on air quality as a major health priority were evidence of the city trying to overturn this image. Hamilton took a more individual approach to obesity consistent with moralizing and "blame the victim" discourse.<sup>13,14</sup> This was seen by their focus on obesity as resulting from individuals who have made unhealthy choices (i.e., not utilizing available opportunities, spending money on unhealthy foods, or choosing to not sit down for family meals). This supports the belief that obese individuals are flawed and lack self-control.<sup>10,11</sup> By fixing these "sick" individuals, the city can become a healthy community as set out in its strategic plan.

What was particularly salient in the findings was the pervasiveness of city-wide values and attitudes towards health in general and obesity in particular. The healthy versus unhealthy perceptions in both cities influenced how they framed the obesity epidemic (as shaped by individual and/or environmental factors), and determined which policies were suggested or implemented (e.g., targeting at-risk populations versus the entire population). Moreover, these attitudes and perceptions of health were common across strategic plans, public health websites, and key informants within each city. This suggests that the socio-cultural and political environments operate concomitantly. The values and beliefs about obesity held by key informants and policymakers influence the ways in which they choose to deal with the obesity epidemic. Similarly, the policies and priorities set by city officials almost always serve to reconstitute those same values. Moreover, the values and policies evident in these two cities influenced how physical environments were to be modified (e.g.,

Mississauga's "force the mix" policy will influence future urban land use and neighborhood design), and economic environments mitigated (e.g., Hamilton offering grocery store vouchers for those in low-income communities to be able to afford food). It is worthwhile to acknowledge the vastly different political and economic landscapes of the two cities, which account for their ability to immediately deal with the obesity epidemic. For instance, Mississauga, with its political and economic stability, is able to undertake initiatives that include larger-scale modifications that require time, money, and government longevity to see them through to completion. Thus, the findings suggest an interaction not just between socio-cultural and political environments but physical and economic environments as well.

Similar to findings of other research,<sup>33,34</sup> the political environment was overlooked as a relevant determinant of obesity by key informants. Instead, political factors were discussed as a means of correcting those problematic determinants found in the physical and economic environments. For instance, the discussions of poverty in Hamilton and serving multicultural populations in Mississauga were suggested as areas where local and provincial government interventions were needed. Overall, the role of the city as a decision-making body and site for dissemination of knowledge was not at all discussed as being important to the current obesity epidemic, a finding which raises concerns. The official discourse of a city (disseminated through policy documents, policymakers, public health websites) is important not just in shaping local policies and practices as evident from this study, but also because "official" discourse is weighed heavily by the lay population and is powerful in influencing their perspectives.<sup>38</sup> When the dominant discourse problematizes certain individuals as deviant, immoral, and unhealthy because of their behavior and/or body size, this serves only to further stigmatize obese individuals and often results in the oversight of other factors central to the current obesity epidemic.<sup>12,59</sup> Without knowledge of their power to influence public opinion and potentially behavior, policymakers risk ignoring the very importance of socio-cultural and political environments in shaping the health of populations.

These two cities were chosen for this study due to their differences in terms of obesity rates as well as socio-cultural and political characteristics but also because of their similarities in that they are both shaped by the same regional, provincial, and national policies. However, systematic investigation of these provincial and national policies was beyond the scope of this particular paper, although they are important areas for future research.

Additionally, there was very little discussion in the policy documents and by key informants about managing the food industry in the cities. This absence may be in part due to the perception that these practices are beyond the control of the key informants interviewed. While municipal public health units are responsible for assessing the health standards of retail food outlets, this is primarily for food handling and preparation rather than the healthfulness of menu items. It would be useful for future studies to examine the role of municipalities in shaping the local food environment by assessing both the political and physical environments.

As the ANGELO Framework suggests, examining various environmental types and scales are important for understanding the complexity of the obesity epidemic.

### **Theoretical Contributions**

In order to understand the role of environmental factors as contributing to the prevalence of obesity, this paper utilized the ANGELO Framework as a conceptual

tool for “dissecting obesogenic environments.”<sup>17</sup> Within the literature, there appears to be a lack of consistency in both definition and analyses of environment as they relate to obesity. This is particularly problematic when attempting to develop best practices for modifying environments and ultimately curbing the increasing rates of obesity.<sup>34,60</sup> Although the ANGELO Framework has been widely cited as a potentially useful tool, it has generally been under-utilized as a way of theorizing environmental determinants of obesity (but see systematic and scoping reviews).<sup>33,34,61–63</sup>

The appeal of this framework is its comprehensiveness while maintaining simplicity, which allows for a broad range of complex environmental factors at various scales to be considered at once. For the purpose of this research, the framework was helpful in situating municipal policies/practices and official discourse on obesity (factors previously overlooked in the literature) within the scope of “obesogenic environments.” However, as noted above, one major challenge of utilizing the ANGELO Framework was that there is more overlap and interaction between the environments than alluded to in the clearly defined boundaries of the authors’ analysis grid.<sup>17</sup>

### **Policy Implications**

Some key informants highlighted additional factors beyond individual physical activity levels and diet in determining obesity in the city. Namely, structural barriers (e.g., poverty, culture) were viewed as important determinants of obesity as they limited the amount of agency an individual had to make lifestyle choices, yet none of the policy documents or initiatives attempted to deal with these upstream determinants of health. Analyses of specific policies on poverty reduction, school nutrition, and demographic change, among others, were beyond the scope of this paper; however, their centrality was certainly evident in the key informant discussions.

Upstream social factors determine other health disparities in addition to obesity, and contribute to health-inhibiting environments rather than solely obesogenic environments. Taking the lead from Frohlich, Ross, and Richmond,<sup>64</sup> it is recommended that “policies with a focus on the alleviation of health disparities focus more on the determinants of health disparities in Canada (and elsewhere), rather than on just the disparities in health themselves”.<sup>64(p.140)</sup> Thus, looking to tackle poverty and cultural barriers to health (among other social determinants) will not only result in improvements in prevalence of obesity but in other health outcomes as well.

### **Conclusions**

Local environments do not exist in a vacuum but are rather shaped by the physical, economic, socio-cultural, and political conditions of the cities, regions, provinces, and nations in which they are located. To date, urban obesity research has largely ignored the importance of socio-cultural and political environmental factors that shape this global epidemic. As evident in this study, such factors are powerful in shaping obesogenic environments and need to be more critically examined by researchers and policymakers alike. Doing so will allow for a better understanding of the process of producing unhealthy environments and how we might de/reconstruct them in the future.

## ACKNOWLEDGMENTS

We would like to extend our appreciation to the key informants who took part in this study. This research was financially supported through ancillary funding from the Canadian Heart Health Surveys Follow Up Study (Canadian Institutes for Health Research and Heart and Stroke Foundation of Canada), and Jennifer was additionally supported through a Doctoral Fellowship from the Social Science and Humanities Research Council of Canada (No. 752-2009-1170 03).

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